

Application No.: Filed herewith

Preliminary Amendment dated: April 29, 2005 for:

National Phase Application of International Application No. PCT/SE2003/01688, filed on October 31, 2002.

Amendments to the Specification:

Please insert the Heading BACKGROUND OF THE INVENTION on page 1, line 9, above the wording “Technical Field”

Please replace the Heading DISCLOSURE OF INVENTION on page 2, line 1, with the wording “BRIEF SUMMARY OF THE INVENTION”

Please replace the second paragraph after the BRIEF SUMMARY OF THE INVENTION beginning at page 2, line 1, with the following rewritten paragraph:

-- Another object of the present invention is achieved by means of a device, including one part which is arranged to rotate in fluid about a rotation axis in a substantially closed chamber delimited in the radially outward direction by means of a wall extending around the rotation axis, wherein in the wall has a radially inward facing wall surface extending wholly or partially around the revolution, the wall surface is a highly smooth low-friction surface against the fluid and extends close to, but with an interspace to the radially outer surface, which is generated around the revolution by the rotary part, and wherein the interspace is suited to minimizing the rotating fluid volume and, at the same time, maintaining necessary width for a boundary layer formed in the fluid between the generated surface and the wall surface.--

Please insert the Heading DETAILED DESCRIPTION OF THE INVENTION on page 2, line 26, before the wording “Fig. 1 thus shows. . .”

Please replace the last paragraph on page 2, beginning at line 26, with the following amended paragraph:

-- Referring to the drawings and initially Fig. 1, thus shows the device in a first embodiment in order to illustrate the principle of reducing energy losses according to the invention. The Fig. 1 shows a section through a machinery unit 1, which can be constituted by, for example, a gear-tooth type gearbox having a gearbox housing 2 enclosing a chamber 3 which is wholly or partially filled with a fluid, such as oil, whose task is to reduce friction between

metal parts and counteract wear and tear, and also, in many cases, to cool. Depending on a number of factors, such as the viscosity of the fluid and the character of the chamber, the fluid does, however, involve energy losses as a result of the fluid counteracting the torque which is applied to the rotating parts in the machinery unit. ~~In the illustrated example As shown in Fig. 1,~~ these are constituted by gear wheels 4, 5, one of which is shown in its entirety. This is rotatable relative to a rotation axis 6, either by the gear wheel being fitted non-rotatably to the shaft and driven around the second by the gear wheel 5, with which the gear wheel 4 is meshed. As a result, particularly, of deformation of the gear wheels in the course of the rotation revolution, i.e. deviation from a smooth cylinder jacket surface, the fluid, to a great extent, is rotated with the gear wheels. In the case of a conventional gearbox, the whole of the fluid volume is rotated and, at the same time, with its outer sections, is braked by the inner walls of the gearbox housing 2, which walls usually have a certain coarseness due, for example, to the chosen production method, such as casting. Apart from the surface structure of the inner wall of the housing 2, a non-rotationally-symmetric volume of the chamber 3, in this case an angular or rectangular cross-sectional form, means that the jointly transported fluid is subjected to a local increase in pressure in the narrower portions, similar to a restriction in a pipe, thereby resulting in further energy losses.--

Please replace the paragraph beginning on page 3 line 20, with the following amended paragraph.

--According to the invention, a screening member 8 is therefore provided, in the form of a screen wall which, ~~in the illustrated example as shown in Fig. 1,~~ extends partially around at least one of the rotary parts, *i.e.*, in ~~the example Fig. 1,~~ the gear wheel 4 and the rotation axis 6. The screen wall is substantially in the shape of a cylinder jacket and extends relatively close to the tooth tips 9 of the gear wheel, yet such that a radial interspace in the form of a gap is formed between the tooth tips and the radially inward facing surface 10 of the screen wall, which surface is highly smooth so as to create as little friction as possible against the enclosed fluid. The screen wall is closed off along two transverse edges 11, 12, which, in this case, are bent radially outward. In the illustrated example, the screen wall is expediently unaltered in its section viewed transversely to the plane of the paper, but can have edges which separate the teeth also in the axial direction so as further to reduce the losses. The chamber 3 in the housing 2 is thereby

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divided into a, relative to the rotation axis 6, radially outer part-chamber 13 and radially inner part-chamber 14. Apart from by opposite end walls and top wall (not shown), the outer part-chamber 13 is limited by the wall sides 15, 16, 17 of the housing and by the outside 18 of the screen wall 8, which latter, as shown in Fig. 1, is likewise in the shape of a cylinder jacket, since the screen wall is realized in a suitable uniformly thick yet relatively thin material, for example steel plating, which is bent into the desired shape. The inner part-chamber 14 is likewise delimited, apart from by end walls (not shown), by the inside or inner surface 10 of the screen wall, which produces low friction against the fluid, and by the surfaces of the rotary parts 4, 6 if the part-chamber is herein regarded as the chamber which can be filled by the particular fluid, *i.e.* oil.--

Please replace the first paragraph on page 5, with the following amended paragraph.

-- The second embodiment of the screening member according to the invention will now be described with reference to Figs. 2-6. This second embodiment is intended to reduce energy losses in a hydraulic pump or motor, which, in ~~the illustrated example~~ Fig. 2, is of a type described in the applicant's own patent publication WO99/30034. This hydraulic machine is of the displacement type, more precisely of the "bent axis" type, in which the drive shaft 20 of the machine has a rotation axis 21 which is angled toward a second rotation axis 22, about which a cylinder drum 23 is intended to rotate together with a number of, for example five, axial pistons 24, which move to and fro, *i.e.* reciprocally, in their respective cylinder bores 25, which latter extend parallel with the second rotation axis 22 and are arranged in a circle viewed from the ends of the cylinder drum 23. As a result of the odd number of cylinder bores and pistons ~~in the illustrated example as illustrated in Fig. 2~~, and the regular distribution thereof, the cylinder bores are not arranged opposite one another in pairs, so that only one cylinder bore is seen in Fig. 2. A hydraulic pump or motor having an even number of cylinder bores, such as six or eight, with cylinder bores arranged diametrically opposite one another in pairs, is shown, for the sake of clarity, in part-section in Fig. 6. With reference to both Figs. 2 and 6, it can be seen that the axial pistons extend out through one end of their cylinder bores with a piston rod 26, which at its outer end transcends into a spherical head 27, which is mounted in a corresponding cup-shaped bearing 28, one bearing cup for each piston, in a driving pulley 29, which pulley is fixedly attached to the

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inner end of the drive shaft 20 and extends perpendicularly to the rotational axis 21 of the latter. As a result of the driving pulley 29 forming an angle to the rotation axis 22 of the cylinder drum, a rotation motion of the drive shaft 20 is created by the axial motions of the pistons, or vice versa, depending on whether the machine is constituted by a pump or a motor. Through alternate filling and emptying of the cylinder bores with hydraulic fluid, pumping action is created in a known manner in the hydraulic fluid in the case of a pump and, conversely, a torque on the drive shaft 20 in the case of a motor. In the case of a pump, a drive motor is coupled to the drive shaft 20, which, thus, is an input shaft for driving of the pump, whilst in the case of a motor a hydraulic pressure in the pressure fluid creates torque on the drive shaft 20, which here is an output shaft. The drive shaft 20 is vertical in Fig. 2, but can have any direction whatsoever, for example, as a result of the machine being mobile and assuming a different inclination during operation. --

Please add the following new paragraph after the paragraph ending at line 9, on page 9:

-- While the present invention has been described with reference to a few specific embodiments, the description is illustrative, of the invention ad is not to be construed as limiting the invention. Various modifications may occur to those skilled in the art without departing from the true spirit and scope of the invention as defined by the appended claims.--